Intervention for children exposed to interparental violence

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2014

document version
Publisher's PDF, also known as Version of record

Moderators of recovery during and after interventions for children exposed to interparental violence

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(under revision)

Abstract

Objective Child and contextual factors were explored as predictors of recovery in children exposed to interparental violence (IPV) participating in two community-based group interventions.

Method IPV-exposed children and parents were randomized to an IPV-focused or common factors community-based group intervention. Baseline, posttest and follow-up measurements of 155 parents and children (aged 6–12 years, 55.5% boys) were fitted in a multilevel model. Outcomes were internalizing and externalizing problems, and post-traumatic stress symptoms. Tested moderators were child maltreatment, symptoms of disturbances of attachment, parental psychopathology, parenting stress, poverty and IPV characteristics.

Results Children with many incidences of child maltreatment, without disinhibited symptoms of disturbances of attachment, of parents with high levels of psychopathology and of parents with high levels of parenting stress showed strongest recovery during intervention. IPV characteristics did not influence recovery during participation in an IPV focused intervention program.

Conclusion Community-based group interventions do not appear to postpone recovery in case of high contextual risk, although children exposed to many incidences of child maltreatment may need additional care. Community-based group interventions may be less suitable for children with symptoms of disorders of attachment.

Witnessing interparental violence (IPV) is distressing for children and has been linked to clinical levels of child behavioral problems as well as clinical levels of post-traumatic stress symptoms (Grych et al., 2000; Spilsbury et al., 2007). Children growing up in violent homes are often exposed to more stressors besides IPV in their lives, and the risk for adjustment problems in children exposed to interparental violence may be attributed to both IPV-exposure and the social and family context in which the IPV occurs (Fergusson & Horwood, 1998). Given the high number of children growing up in violent homes (Alink et al., 2011; Hamby et al., 2011), community-based group interventions have been developed as more widely accessible alternatives to clinical therapeutic programs (e.g. Graham-Bermann et al., 2007. While on average children show recovery from adjustment problems during such interventions (Graham-Bermann et al., 2007; Sullivan et al., 2002; Wagar & Rodway, 1995), it is important for program design and individual decision making to identify child, history and context factors that distinguish which children are most susceptible to this type of interventions.

For children exposed to IPV, moderators of intervention efficacy have only been examined in two previous studies. Lieberman and her colleagues looked at the moderating effect of related risk factors besides IPV, and found that the number of risk factors – eight risk factors related to the caregiver (3), the parent-child relationship (4) and experienced violence (1) – moderated intervention effectiveness. Children exposed to more than four risk factors participating in the intervention 'Child Parent Psychotherapy' improved more over time than children exposed to less risk factors in this intervention, or children exposed to any number of risk factors participating in the control condition (case management and parent psychotherapy) (Ippen, Harris, Van Horn, & Lieberman, 2011). Graham-Bermann and her colleagues found that for all children participating in the efficacy trial regarding 'Kids' Club', length of exposure to IPV moderated change in adjustment: children exposed to a greater proportion of violence in their lives improved the most (Graham-Bermann et al., 2011). These studies suggest that children exposed to multiple risk factors will benefit most from interventions.

Interparental violence usually happens within a constellation of risk factors, meaning that the risk of developing psychopathology is higher than can be explained by IPV alone (Cicchetti, 2003). Higher levels of marital conflict were associated with increased parent-child conflict and less secure attachments (El-Sheikh & Elmore-Staton, 2004). Parents in a violent relationship reported higher levels of psychopathology and parenting stress than parents in a non-violent relationship (Levendosky & Graham-Bermann, 1998, 2001). Interparental violence occurs more often in families characterized by social and economic disadvantages, such as families living below the poverty threshold (Fergusson & Horwood, 1998). These

child and contextual risk factors in addition to IPV explained additional variance in child outcomes (El-Sheikh & Elmore-Staton, 2004; Fergusson & Horwood, 1998; Levendosky & Graham-Bermann, 1998, 2001), and may also be considered as moderators of intervention. Therefore, additional factors of both IPV characteristics (Grych et al., 2000; Litrownik et al., 2003), and child and family factors, in particular child maltreatment, attachment difficulties, parental psychopathology, parenting stress and poverty, will be studied as moderators of recovery during and after intervention.

In a recent study in the Netherlands the effectiveness of a community-based IPV-focused intervention program ('It's my turn now!'), developed for children exposed to IPV (Blijfgroep, 2009), has been studied in a randomized controlled trial (RCT). This intervention program was based on trauma theory (Perry, 1993) and attachment and parenting theories (Bowlby, 1973; Grych, 2002). The intervention program has been compared with a structurally equivalent program, based only on common factors (Grencavage & Norcross, 1990). Results of the RCT showed that children in the IPV-focused intervention program exhibited less severe trauma symptoms and behavior problems from baseline to posttest, and their symptoms remained at this decreased level until follow-up six months later. However, contrary to the initial hypothesis, children participating in the common factors intervention improved to a similar extent (Overbeek, De Schipper, Lamers-Winkelman, & Schuengel, 2013). Possibly, the common factors in both interventions addressed to some extent additional difficulties that families faced besides IPV-exposure.

The current study therefore explored whether, in addition to indicators of IPV severity, indicators of concomitant risk factors moderated recovery in children participating in the trial regarding the effectiveness of specific factors used in the community-based intervention program 'It's my turn now!'. We tested whether children exposed to more concurrent risk factors besides IPV (child maltreatment, symptoms of disturbances of the attachment relationship, parental psychopathology, parenting stress, poverty) would improve more after participation in both interventions than children exposed less to these risk factors. Furthermore, we tested whether indicators of IPV severity (severe partner perpetrated psychological violence, severe partner perpetrated physical violence and duration of the violent relationship) moderated the potential benefit of the IPV focused intervention over the common factors intervention.

Method

Participants

One hundred and fifty-five children aged 6 to 12 ($M = 9.22$, $SD = 1.51$; 55.5% boys) and their caretaking parents (148 mothers, 7 fathers) participated in a randomized controlled trial comparing the community-based IPV-focused group intervention 'It's my turn now!' to a community-based common factors supportive group intervention. Parent-child dyads were eligible for participation if they 1) had experienced interparental violence, and 2) indicated the violence had stopped. Of these 155 dyads who gave informed consent 100 were randomized to the IPV intervention condition, and 55 to the common factors condition. This ratio was chosen to increase statistical power for testing moderators in the IPV intervention condition. The majority of the children was born in the Netherlands (92%), but ethnic background of the primary caregiver was diverse (43% Dutch, 19% Turkish/Moroccan, 20% Antilles/Suriname and 18% from another cultural background). Income was low (66% had a yearly income of less than €15.000,-), and most parents had a low (41%) or middle (46%) level of education. The mean length of the abusive relationship had been 10.87 years ($SD = 6.06$), 26 parents (17%) were still together with the abusive partner and 94 parents (61%) still had contact with the abusive partner. At baseline the two conditions did not differ significantly regarding demographic characteristics.

Procedure

Participants were recruited from eight organizations specialized in IPV, in seven cities in urban and rural regions in the Netherlands for participation in a randomized controlled trial regarding the effectiveness of specific factors used in the community-based IPV intervention 'It's my turn now!' (see Overbeek, De Schipper, Lamers-Winkelman, & Schuengel, 2012, for full protocol details). Only after informed consent random group assignment took place. Parents, children, therapists, as well as the researchers were blind to group allocation until two weeks before the start of the program, to prevent a bias in the intake procedure. The research protocol was approved by the Medical Ethics Committee (METc VUmc 2009/99/NL26649.029.09). Assessments were at baseline (T1), one week after the end of the program (three months after baseline, T2), and six months after the end of the program (nine months after baseline, T3). Subject retention to follow-up was 80%: no differences were found between the remaining parent-child dyads and those who dropped out of the study regarding children's age, gender or ethnicity, marital or educational status

of the caretaking parent, family income, degree, type and duration of IPV, or emotional/behavioral problems or post-traumatic stress symptoms of the child at baseline.

Intervention Programs

Both interventions consisted of nine 90-minute sessions, with parallel sessions for children and parents. Details of both intervention protocols can be found in Overbeek et al. (2012). Because of ethical objections of the community services, no wait-list / no-treatment control condition was included in the research design. Overall attendance rates varied from 0 to 9 sessions for the child ($M = 6.41$, $SD = 2.13$). Participation in the program did not differ significantly for those in the IPV intervention and in the common factors intervention: $t(1, 153) = 0.58$, $p = .56$, nor by age or gender of the child, or cultural background of the child or parent. Attendance was not associated with level of adjustment problems at baseline.

IPV intervention program 'En nu ik…!' ('It's my turn now!')

The first version of 'It's my turn now!' was developed in 1999 (De Ruijter, 1999) and the program was adapted in 2009, by a consortium formed by the Women Shelter, the Centre of Youth Care, social work and mental health care services in Amsterdam, the Netherlands (Blijfgroep, 2009). The intervention had three main goals for children: 1) to process IPV experiences, 2) to learn how to differentiate and express emotions, and 3) to learn how to cope with feelings and problems in a different (non-violent) way. Components used in this intervention for children were affect modulation and emotion regulation skills, coping skills, sharing of experiences, structure and positive attention. In the first two sessions children learned to recognize and name emotions. Therapists did not introduce the topic of violence until the third session. In the parent sessions, therapists informed parents about IPV impact on parenting, and gave parenting and communication skills training through psycho-education, discussion, role play and home work assignments.

Common factors intervention program 'Jij hoort erbij' ('You belong')

This program was based on an analysis of common factors (Mohr et al., 2009) in the IPV intervention program. Based on this analysis, the common factors group intervention offered positive attention from the therapist, a structured environment, sharing of general experiences, distraction and social support, and interaction among group participants to

support recovery and functioning. Therapists were instructed not to focus on traumatic experiences, parenting, emotions, emotion regulation or coping.

Outcome Measures

Parents and teachers reported on internalizing and externalizing problem behaviors and parents and children reported on post-traumatic stress symptoms. Because of the nature of IPV, which influences both parent and child, parents may have difficulty reporting objectively about their child's problems, and also problems may manifest context-specific. Teachers on the other hand see many children in a structured environment and have more possibilities for comparisons. Therefore, they can provide an added perspective to parent-report. In our sample, the youngest children could not provide valid information about their well-being, and children often have a tendency to underreport problems. Informants can complement each other (De Los Reyes & Kazdin, 2005). To analyze moderators of the decrease of adjustment problems during and after intervention, main outcome variables reflected whether or not children exhibited (sub)clinical levels of problem behavior. The scores of reporters (parent and teacher/child) were combined when both had a valid score at baseline and on at least one other assessment, and both reported about the same assessment. For children with only one reporter, scores of this reporter were used.

Children's internalizing and externalizing problems

A composite score for whether (sub)clinical levels of internalizing and externalizing problems were present was based on parent and teacher report. Parents reported about their children's internalizing and externalizing problems with the Dutch translation of the *Child Behavior Checklist for Children 6–18 (CBCL)* (Achenbach & Edelbrock, 2001; Verhulst et al., 1996). This questionnaire was shown to be both valid and reliable in research with clinical populations. The *CBCL* consists of 119 items with which parents rate the behavior of their child on a 3-point scale, consisting of 0 (*not true*), 1 (*sometimes true*) and 2 (*very/often true*). For 'Internalizing Problems' ($\alpha = .85 - -.87$) and for 'Externalizing Problems' ($\alpha = .92$) a trichotomous *clinical* (2)/*subclinical* (1)/*non-clinical* (0) score can be calculated. Teachers also reported about the 'Internalizing Problems' ($\alpha = .84 - -.87$) and 'Externalizing Problems' ($\alpha = .93 - -.94$) of children with the Dutch translation of the *Teacher Report Form 6–18 (TRF)* (Achenbach & Edelbrock, 2001; Verhulst et al., 1997), similar to the *CBCL*.

Children's post-traumatic stress symptoms

A composite score of (sub)clinical levels of post-traumatic stress (PTS) symptoms was based on parent report and child self-report. Parents filled out the *Trauma Symptom Checklist for Young Children (TSCYC)* (Briere, 1997; Dutch translation by Lamers-Winkelman, 1998), for children aged 3 to 12 years. Parents rated the behavior and emotions of their child in the past month on 90 items with a 4-point Likert scale, ranging from 1 (*not at all*) to 4 (*very often*). This questionnaire includes two validity scales to assess the tendency of caretakers to under-report or over-report symptoms, and nine clinical scales. Alpha's of the clinical scale 'Total Post-traumatic Stress' in the current study ranged from .88 to .89 (over assessments). This questionnaire has been shown to be reliable and valid for use with children exposed to violence (Briere et al., 2001), also in the Netherlands (Nan & Koopman, 2009). Children aged 7.5 years and older, reported about their own level of post-traumatic stress symptoms by use of the *Trauma Symptom Checklist for Children (TSCC)* (Briere, 1995; Dutch translation by Bal, 1998). The *TSCC* consists of 54 items, and each item is answered on a 4-point Likert scale, ranging from 0 (*never*) to 3 (*almost all the time*). In this questionnaire also two validity scales are included to assess the tendency of children to under-report or over-report problems, as well as six clinical scales. In the current study, α was .78–.85 (over assessments) for the clinical scale 'Post-traumatic Stress'. A variety of studies with traumatized children showed that the *TSCC* has adequate reliability and validity (Lanktree et al., 2008), also in the Netherlands (Curiel, 2005). Extremely high parent and child scores (top 1–2%) on the validity scales were deemed invalid. Valid raw scores on the clinical scales of both the *TSCYC* and *TSCC* were recoded into a trichotomous *clinical* (2)/*subclinical* (1)/*non-clinical* (0) score.

Moderators related to concurrent problems in children's lives

Child maltreatment

Child maltreatment was assessed with the Dutch translation (Lamers-Winkelman et al., 2007) of the *Parent-Child Conflict Tactics Scales (CTSPC)* (Straus et al., 1998). Test-retest reliability and construct and discriminant validity for this instrument have been demonstrated (Straus et al., 1998). Maltreatment was clustered into five scales, of which two were used in this study: 'Psychological Aggression' (5 items) and 'Physical Assault' (only *severe* and *very severe*, 8 items). For each item parents rated how often they or their partner had treated their child in this way during the past year, ranging from 1 (*never happened*) to 8 (*more than 20 times in the last year*). Ratings were recoded into a frequency score (ranging

from 0–25) and a total frequency-score was calculated, combining the two scales into one overall child maltreatment frequency scale. Internal consistency for this frequency score was .74 (26 items).

Disturbances of attachment

To assess symptoms of disturbances of attachment, parents were interviewed with the *Disturbances of Attachment Interview (DAI)* (Smyke & Zeanah, 2002). The instrument has shown acceptable internal consistency and good convergent and discriminant validity (Gleason et al., 2011). The interview consists of twelve questions assessing symptoms of inhibited disturbances of attachment (5 items), disinhibited disturbances of attachment (3 items) and secure base distortions (4 items). A question is scored with 0 (*symptom not present*), 1 (*symptom partly/possibly present*), and 2 (*symptom definitely present*). Categorical principal component analyses in a previous study in the Netherlands showed a two-factor solution for inhibited and disinhibited disturbances of attachment (Oosterman & Schuengel, 2007). In the current study these two factors were used. Prior to data collection the first author and a graduate student were trained in administering and coding the *Disturbances of Attachment Interview* by the second author, who was trained to identify symptoms of attachment disturbances by Neil Boris and Robert Marvin. Reliability of the coders after training ranged from .69 to 1.00 over items and 0.80 to 0.97 over scales. After the reliability assessment , the two interviewers/coders discussed difficult cases.

Parental psychopathology

Parental psychopathology was assessed by aggregating standardized scores for parental post-traumatic stress, anxiety and depression symptoms. Post-traumatic stress symptoms of the parent were assessed with the Dutch version (translated by Olff, 2006) of the *Impact of Events Scale-Revised (IES-R)* (22 items; Weiss, 2004). This questionnaire has shown good discriminant validity and diagnostic utility in other research (Adkins et al., 2008). Parents rated their own behavior and thoughts of the past seven days on a 5-point Likert scale, ranging from 0 (*not at all*) to 4 (*very much*). To assess parental anxiety and depression symptoms, the Dutch version of the *Hospital Anxiety and Depression Scale (HADS)* (Zigmond & Snaith, 1983) was used. Participants were asked to answer seven questions regarding anxiety and seven questions regarding depression on a 4 point scale. In other studies in the Netherlands internal consistency and test-retest reliability (after three weeks) was good (Spinhoven et al., 1997). In the present study internal consistency of the total score for parental psychopathology was high ($\alpha = .96$: 36 items).

Parenting stress

Overall parenting stress was assessed with the 25-item version of the *Parenting Stress Index (PSI)* (Abidin, 1983), translated into Dutch (De Brock et al., 1992), for parents of children aged 3–12 years. Questions cover child related stress as well as stress related to the parental role. Parents were asked to answer on a 6 point scale, ranging from 1 (*totally disagree*) to 6 (*totally agree*). In previous studies in the Netherlands validity was acceptable (De Brock et al., 1992), and in the current study internal consistency was high ($\alpha = .94$).

Poverty threshold

A dichotomous variable was calculated to qualify families living below and above the poverty threshold. Poverty threshold is generally defined as the income a person needs to meet basic needs (clothing, water, food, housing, education and health). For a single-parent family with two children in the Netherlands, the poverty threshold is set at an annual income of €15.000 (Central Bureau of Statistics, the Netherlands).

Moderators related to IPV characteristics

To assess the degree and type of IPV, parents were asked to fill out the Dutch version (translated by Lamers-Winkelman, 2005) of the *Revised Conflict Tactics Scales (CTS2)* (Straus et al., 1996). For each item parents were asked whether and how often a specific tactic was used in a conflict situation. For this study an 'ever prevalence'-score was calculated, which assessed which tactics of severe psychological (4 items) and severe physical violence (7 items) had been used by the partner. Internal consistency for psychological violence was .65 and for physical violence was .78. Two questions regarding the start and end of the violent relationship were added. To assess the duration of violence exposure of the child the reported duration of the violent relationship was adapted to the age of the child and could not exceed the age from conception.

Statistical procedure

All continuous moderators were checked for outliers ($-3.29 < Z < 3.29$), and outliers were winsorized to the nearest non-outlier (6 values of 6 children) (Tabachnick & Fidell, 2007). A multilevel growth model was fitted on an intention-to-treat basis to assess which moderators were predictive of recovery during and after interventions for children exposed to IPV. To account for the change of scores of children over time, SPSS Mixed Models (IBM SPSS Statistics version 20) was used. Preliminary analyses showed that 'organization' and

'treatment group within condition' had design effects smaller than 2.0, indicating no need to model organization or treatment group as a separate level (Peugh, 2010). The final fitted models consisted of two levels: time (level 1) and child (level 2). Data were analyzed using a maximum likelihood estimation procedure, with clinical classification of internalizing and externalizing problems and post-traumatic stress symptoms as outcome variables. The continuous moderators were first centered before being added as predictors. A stepwise procedure was used to model individual growth models for each outcome variable separately. In step 1, an empty model was fitted to the data. In step 2, time (three assessments) was added, resulting in a model with a random intercept for internalizing problems and post-traumatic stress symptoms, and a model with a random slope for externalizing problems. Besides 'Time', also the quadratic trend of time ('Time' * 'Time' = 'Quadtime') was added to the model, because it was expected that children would show a steeper decline in problems during participation in the program, than from posttest till follow-up. In step 3, the moderator (fixed) and the interaction between moderator and time (fixed) were entered into the model. In step 4, treatment condition was added to the model. Because of power limitations, each moderator was tested in a separate model. To control for multiple testing, bootstrapping was performed with 1000 stratified bootstrap samples to assess the stability and replicability of the sample results. To provide a consistent bootstrap sample size, all bootstrap analyses for three-way interactions were stratified for condition (Roberts & Fan, 2004). At each step, differences in fit between models were evaluated by use of the χ^2 difference test for deviance values (−2 Log Likelihood). Only if the model significantly improved, the moderators were interpreted. An alpha of .05 was used to test the statistical significance of the bootstrapped effects. Significant two-way interactions ('Moderator' * 'Time') were interpreted by separate bootstrap analyses for children with low versus high scores on the moderator (using simple slope analyses).

Results

Preliminary analyses

Table 4.1 shows the descriptives and Pearson correlations for the study variables. Baseline clinical classification of internalizing problems, externalizing problems and post-traumatic stress symptoms were moderately associated ($r \leq .43$) with factors related to the parent-child relationship (maltreatment, symptoms of inhibited disturbances of attachment), to the parent (parental psychopathology, parenting stress) as well as to violence characteristics (physical violence). Some moderators were moderately associated with each other, but

none were highly correlated ($r \leq .33$, except severe partner-perpetrated psychological and physical aggression: $r = .59$).

Moderators related to concurrent problems in children's lives

Significant moderator effects are presented in Table 4.2 and described below. Symptoms of inhibited disturbances of attachment and poverty did not significantly moderate recovery after intervention on any of the outcome variables.

Child maltreatment The model with only time as predictor improved significantly when adding child maltreatment as predictor to the model (−2 Log Likelihood = 1022.71, Δdeviance $\chi^2(\Delta df = 3) = 23.16, p < .01$). This total model explained 6.9% of the total variance in clinical classification of internalizing problems. Regardless of the main effect (Δdeviance $\chi^2(\Delta df = 1) = 17.98, p < .01$), child maltreatment was also related to slope changes in internalizing problems (Δdeviance $\chi^2(\Delta df = 2) = 5.19, p \leq .05$). Child maltreatment moderated the linear as well as the curvilinear effect of time on clinical classification of internalizing problems: from pretest to posttest, children who experienced many incidences of maltreatment decreased more in the severity of their clinical classification of internalizing problems than children who experienced few incidences of maltreatment. From posttest to follow-up, children who experienced many incidences of maltreatment did not change clinical classification, while children who experienced few incidences of maltreatment stayed on a downward trend (Figure 4.1).

Disturbances of attachment The model with only time as predictor improved significantly when adding disinhibited disturbances of attachment as predictor to the model (−2 Log Likelihood = 833.06, Δdeviance $\chi^2(\Delta df = 2) = 216.21, p < .01$). This total model explained 11.3% of the variance in clinical classification of internalizing problems. Regardless of the main effect (Δdeviance $\chi^2(\Delta df = 1) = 210.06, p < .01$), symptoms of disinhibited disturbances of attachment were also related to slope changes in internalizing problems (Δdeviance $\chi^2(\Delta df = 1) = 6.15, p < .05$): children with symptoms of disinhibited disturbances of attachment decreased less in the severity of their clinical classification of internalizing problems over time than children without symptoms of disinhibited disturbances of attachment (Figure 4.2).

Table 4.1 Descriptives and Pearson correlations between variables

Variable		*N*	Range	Mean	*SD*	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1.	Baseline severity int problems	154	0–2	1.13	0.91	.31**	.37**	.14	.30**	.16	.18*	.01	.07	.11	.18*	−.10
2.	Baseline severity ext problems	154	0–2	0.77	0.90	-	.36**	.14	.20*	.43**	.33**	.17	.01	.10	.17*	−.09
3.	Baseline severity PTSD	139	0–2	0.71	0.89		-	.21*	.39**	.32**	.25**	.02	.08	.12	.17*	−.05
4.	Child maltreatment	153	0–125	22.5	31.0			-	.21*	.09	−.01	.10	−.04	.19*	.16*	.00
5.	Parental psychopathology	153	1–116	45.0	28.3				-	.33**	.19*	−.11	.03	.20*	.26**	−.08
6.	Parenting stress	154	25–124	56.8	24.6					-	.33**	.00	.05	.10	.10	−.13
7.	Inhibited disordered attachment	127	0–3	0.61	0.87						-	.21*	−.03	−.01	.08	.07
8.	Disinhibited disordered attachment	127	0–6	0.28	0.56							-	−.12	−.14	−.05	−.05
9.	Poverty	149	1–2	1.34	0.47								-	.02	−.06	.20*
10.	Psychological aggression	153	0–4	2.27	1.35									-	.59**	.07
11.	Physical assault	153	0–7	3.35	2.09										-	.09
12.	Length violent relationship	153	0.03–13.56	6.29	4.02											-

Note. Reported variables are winsorized variables. Baseline adjustment problems were coded as 0 (*non-clinical*), 1 (*subclinical*), 2 (*clinical*). Poverty was coded as 1 (*below poverty threshold*) and 2 (*above poverty threshold*). Length of the violent relationship is in years and corrected for age of the child. PTSD = Post-Traumatic Stress Disorder.
* $p < .05$, ** $p < .01$

Table 4.2 Parameter estimates for bootstrapped multilevel models with moderators predicting clinical classification of internalizing problems, externalizing problems and post-traumatic stress symptoms: separate models for child maltreatment, disturbances of attachment, parental psychopathology and parenting stress

	Child maltreatment Internalizing		Disinhibited disordered attachment Internalizing		Parental Psychopathology PTS-symptoms		Parenting stress Externalizing		Parenting stress PTS-symptoms	
	B (*SE*)	*p*	*B* (*SE*)	*p*	*B* (*SE*)	*p*	*B* (*SE*)	*p*	*B* (*SE*)	*p*
Fixed effects										
Intercept	1.14 (0.06)	.001	1.13 (0.05)	.001	0.71 (0.06)	.001	0.76 (0.04)	.001	0.71 (0.06)	.001
Time	−0.50 (0.15)	.001	−0.26 (0.04)	.001	−0.47 (0.15)	.010	−0.12 (0.03)	.001	−0.47 (0.15)	.004
Quadtime	0.14 (0.07)	.074	n.s.	n.s.	0.15 (0.07)	.047	n.s.	n.s.	0.15 (0.07)	.053
Moderator	0.004 (0.002)	.015	−0.001 (0.09)	.979	0.13 (0.02)	.001	0.02 (0.002)	.001	0.01 (0.002)	.001
Time ∗ Moderator	−0.01 (0.004)	.046	0.18 (0.07)	.014	−0.03 (0.01)	.045	−0.003 (0.001)	.002	−0.004 (0.002)	.032
Quadtime ∗ Moderator	0.005 (0.002)	.033	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Random effects										
Child	0.36 (0.04)	.001	0.36 (0.04)	.001	0.19 (0.04)	.001	0.51 (0.06)	.001	0.22 (0.04)	.001
Time	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	0.05 (0.04)	.893	n.s.	n.s.
−2*LL*/−2*LL* empty model	1022.71 / 1081.79		833.06 / 1081.79		820.85 / 872.42		829.53 / 880.32		832.75 / 872.42	

Note. *B* = Parameter estimate; *SE* = Standard error; n.s.: non-significant; −2*LL*: −2 Log Likelihood.

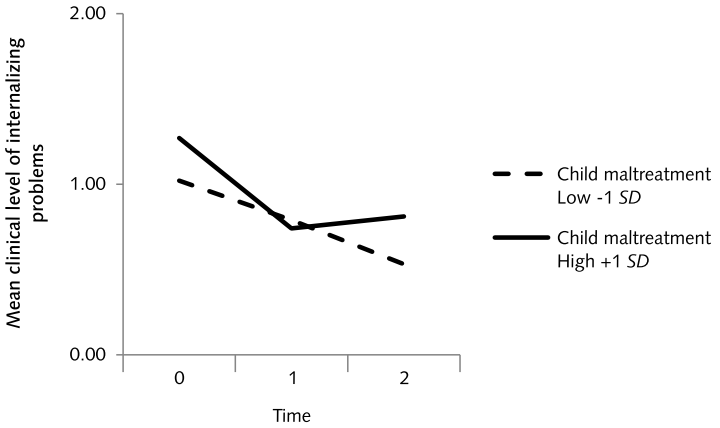

Figure 4.1 Clinical classification of internalizing problems of children exposed to many (+1 *SD*: Pretest – posttest: $B = -0.52$, $p = .001$; Posttest – follow-up: $B = -0.07$, $p = .639$) and few (−1 *SD*: Pretest – posttest: $B = -0.21$, $p = .133$; Posttest – follow-up: $B = -0.24$, $p = .135$) incidences of child maltreatment

Parental psychopathology The model with only time as predictor improved significantly when adding parental psychopathology as predictor to the model for post-traumatic stress symptoms (−2 Log Likelihood = 820.85, Δdeviance$\chi^2(\Delta df = 2) = 27.50$, $p < .01$). The total model explained 13.6% of the total variance in clinical classification of post-traumatic stress symptoms. Regardless of the main effect (Δdeviance$\chi^2(\Delta df = 1) = 23.29$, $p < .01$), parental psychopathology was also related to slope changes in clinical classification of post-traumatic stress symptoms (Δdeviance$\chi^2(\Delta df = 1) = 4.21$, $p < .05$): children of parents with high levels of psychopathology decreased more in their clinical classification of post-traumatic stress symptoms over time than children of parents with low levels of psychopathology (Figure 4.3).

Parenting stress The model with only time as predictor improved significantly when adding parenting stress as predictor to the model for externalizing problems (−2 Log Likelihood = 829.53, Δ deviance $\chi^2(\Delta df = 2) = 35.14$, $p < .01$) and post-traumatic stress symptoms (−2 Log Likelihood = 832.75, Δdeviance$\chi^2(\Delta df = 2) = 15.60$, $p < .01$). It is not possible to exactly estimate the explained variance of a model with a random slope, but by calculating the explained variance of a model without a random slope an estimation of the explained variance can be obtained (Snijders & Bosker, 1999). The esti-

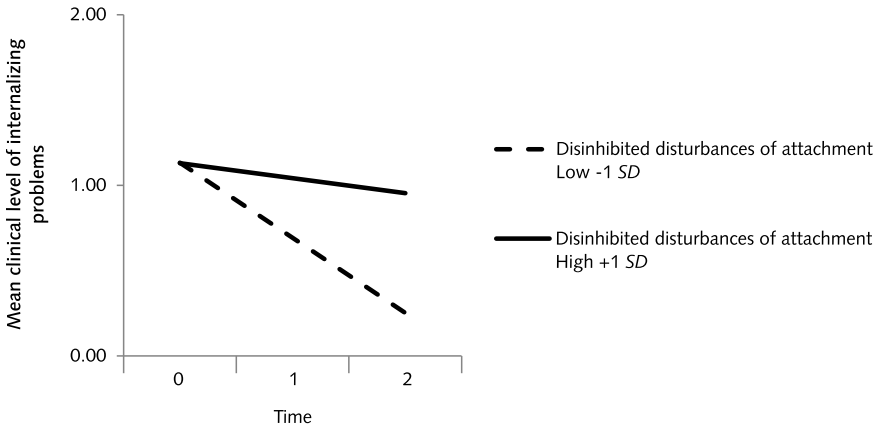

Figure 4.2 Clinical classification of internalizing problems of children with many (+1 *SD*: $B = -0.17$, $p = .003$) and with few (−1 *SD*: $B = -0.36$, $p = .001$) symptoms of disinhibited disturbances of attachment

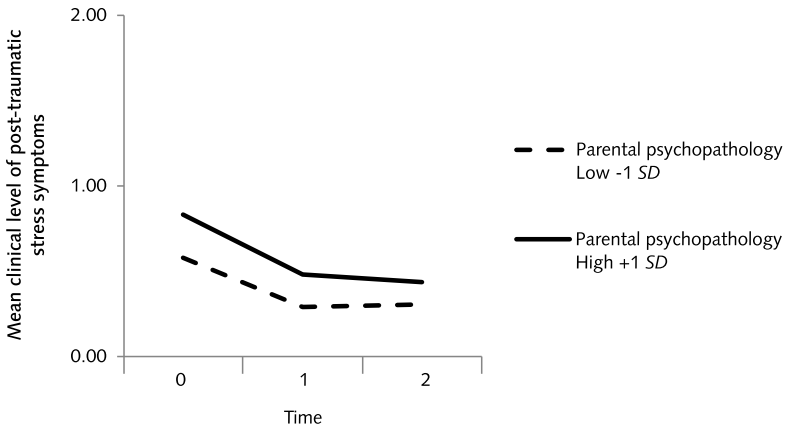

Figure 4.3 Clinical classification of post-traumatic stress symptoms of children with parents with high (+1 *SD*: $B = -0.55$, $p = .003$) and parents with low (−1 *SD*: $B = -0.40$, $p = .018$) levels of psychopathology

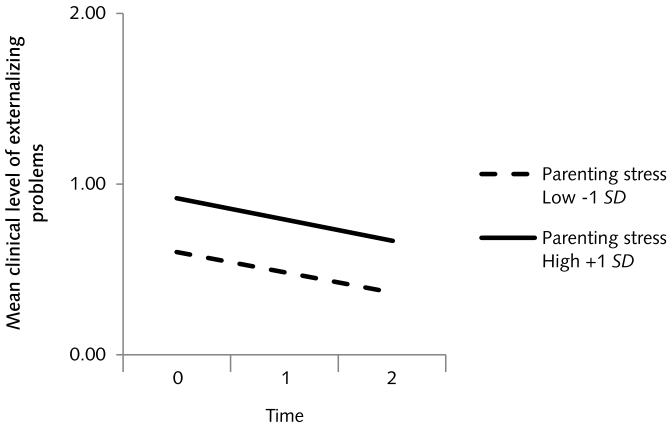

Figure 4.4 Clinical classification of externalizing problems of children with parents with high (+1 *SD*: $B = -0.20$, $p = .001$) and low (−1 *SD*: $B = -0.05$, $p = .064$) levels of parenting stress

mated total model explained 15.0% of the total variance in clinical classification of externalizing problems. For clinical classification of post-traumatic stress symptoms the total model explained 8.7% of the total variance. Regardless of the main effect (externalizing problems: $\Delta\text{deviance}\chi^2(\Delta\text{df} = 1) = 29.17, p < .01$; post-traumatic stress symptoms: $\Delta\text{deviance}\chi^2(\Delta\text{df} = 1) = 9.72, p < .01$), parenting stress was also related to slope changes in clinical classification of externalizing problems ($\Delta\text{deviance}\chi^2(\Delta\text{df} = 1) = 5.97, p < .05$) and post-traumatic stress symptoms ($\Delta\text{deviance}\chi^2(\Delta\text{df} = 1) = 5.89, p < .05$): children of parents with high levels of parenting stress decreased more in their clinical classification of externalizing problems and post-traumatic stress symptoms over time than children of parents with low levels of parenting stress (Figure 4.4 & Figure 4.5).

Moderators related to IPV characteristics

IPV characteristics did not significantly moderate recovery after intervention on any of the outcome variables (severe partner perpetrated psychological aggression [p-values $\geq .23$], severe partner perpetrated physical aggression [p-values $\geq .49$], duration of the violent relationship [p-values $\geq .20$]). As described earlier (Overbeek et al., 2013) IPV-exposed children decreased in their symptomatology over time after participation in intervention, but no effects of treatment-condition over time were found on the level of internalizing problems and externalizing problems. For post-traumatic stress symptoms an interaction

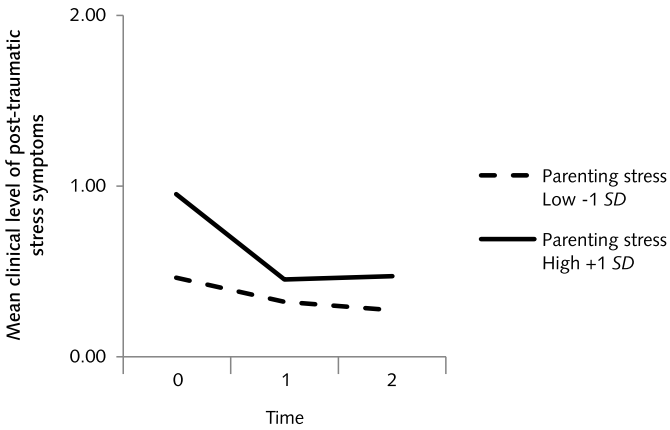

Figure 4.5 Clinical classification of post-traumatic stress symptoms of children with parents with high (+1 *SD*: $B = -0.57$, $p = .003$) and low (−1 *SD*: $B = -0.38$, $p = .034$) levels of parenting stress

effect between 'Time' and 'Intervention condition' was found: children in the common factors intervention decreased in symptomatology at a steeper slope than children in the IPV intervention. In the current study no moderator effects of IPV characteristics (severe partner perpetrated psychological aggression [*p*-values ≥ .18], severe partner perpetrated physical aggression [*p*-values ≥ .13], duration of the violent relationship [*p*-values ≥ .13]) on the effect of an intervention specifically targeting IPV were found on the clinical classification of internalizing problems, externalizing problems or post-traumatic stress symptoms over time.

Discussion

In line with earlier intervention studies (Graham-Bermann et al., 2011; Ippen et al., 2011), children exposed to many incidences of child maltreatment and children of parents experiencing high levels of psychopathology and parenting stress showed more recovery after participation in intervention than children exposed to few incidences of child maltreatment and children of parents with low levels of psychopathology and parenting stress. No differences in recovery were found depending on poverty and IPV characteristics. However, an important side note to the findings concerning child maltreatment, is that children who experienced many incidences of maltreatment did not improve in their level of internalizing problems from posttest to follow-up, while children who experienced few incidences of

maltreatment did. A novel finding was that children with symptoms of disinhibited disturbances of attachment improved less in their clinical classification of internalizing problems after intervention than children without disinhibited disturbances of attachment. A typical feature of disinhibited social engagement is the general shallowness of social contact, which might have limited children's engagement in the group therapeutic activities.

No moderator effects of IPV characteristics were found on recovery during and after participation in an intervention targeting IPV. Despite several studies in which degree and type of exposure to IPV have been associated with child outcomes (Grych et al., 2000; Litrownik et al., 2003), our results suggest that specific IPV characteristics may not be as important for recovery on child outcomes during IPV focused intervention. These results are partly congruent with results of the study of Graham-Bermann and her colleagues (2011). They also found no moderator effects of psychological or physical interparental violence on the effectiveness of intervention. However, they did find that the length of IPV-exposure affected change in children's adjustment. Length of IPV-exposure was not corrected for the age of the child in their study, providing more variability, which may explain this difference in results. Overall, our results suggest that, regardless of the intensity of IPV-exposure and regardless of whether IPV is discussed during intervention, children recover during and after participation in community-based interventions.

Limitations

Several limitations of this study should be taken into account. First, findings of the current study are limited to this sample of parents and children – those who were willing to seek help and participate in an effectiveness trial. Second, as in many other studies moderator analyses were exploratory (Hinshaw, 2007), requiring replication. Third, for some children only one reporter (either parent or teacher/child) reported about children's level of adjustment problems. It could be that because of inclusion of these children clinical problems have been underreported, and a different picture would have emerged if all children were evaluated by two reporters ($N = 94$ for internalizing and externalizing problems, and $N = 82$ for post-traumatic stress symptoms). However, additional analyses supported the results found in the total sample, except that no moderation of parental psychopathology and parenting stress on the clinical level of post-traumatic stress symptoms was found in the subsample, possibly because the small sample size. Moderator analyses on the other outcomes in this subsample showed results similar to those reported in the results section, supporting the idea that the total group of children reflects a representative picture of the severity of adjustment problems of children exposed to IPV.

Future Directions

We found no evidence that children who have been exposed to more severe and long-term interparental violence recover better from these experiences in an IPV-focused intervention than in an intervention with only common treatment factors. Therefore, the question remains which intervention components may help children the most. Given the added impact on child outcomes of a parallel parent group in interventions for children exposed to IPV (Graham-Bermann et al., 2007), future studies might test the possibility that interventions may work through the impact of child rearing components on parents (Jouriles et al., 2009; Timmer, Ware, Urquiza, & Zebell, 2010), by studying changes in parenting stress and parent-child interacton during intervention.

Clinical Implications

Children exposed to additional family risk factors besides interparental violence (child maltreatment, parental psychopathology, parenting stress) recover from their symptoms during community-based interventions, implying that in general, such low threshold interventions are not counter-indicated for children with severe and multiple risk backgrounds, although children exposed to many incidences of child maltreatment may need additional care. Children with symptoms of disinhibited disturbances of attachment did not seem to benefit as much from participation in intervention, and may require interventions that are more focused on the parent-child relationship (e.g. Lieberman et al., 2005). A thorough screening for disturbances of attachment at intake, and follow-up assessments with children exposed to many incidences of child maltreatment may be necessary to provide also these children with the best possible stepped care.